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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,491	12/01/2003	Kiomars Anvari		1042

7590
KIOMARS ANVARI
1567 SERAFIX RD
ALAMO, CA 94507

01/29/2007

EXAMINER

CHAN, RICHARD

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.		Applicant(s)	
	10/724,491		ANVARI, KIOMARS	
	Examiner		Art Unit	
	Richard Chan		2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claim 12 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 12 recites "wherein the Digital Signal Processor (DSP) function can be implemented in programmable logic, Field Programmable Gate Array(FPGA), Gate Array, ASIC."

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1-6, 5-9, 12 rejected under 35 U.S.C. 102(e) as being anticipated by Pinckley (US 6,983,026).

With respect to claim 1, Pinckley discloses the wireless Peak Reduction equalizer circuit for use with multi-carrier signals in a wireless communication system to enhance the linearity and performance of the amplifier, in any wireless network, wireless cellular, Personal communication System (PCS), wireless Local Area Network (LAN), Wireless Wide area network (WAN) line of sight microwave, military, and satellite communication systems and any other none wireless applications, the Peak Reduction Equalizer circuit Fig.3 comprising: a multicarrier receiver 117 for the Peak Reduction Equalizer of IF or RF input signal to amplifier 239 wherein the input signal is baseband then the multi-carrier receiver is bypassed; (Col.3 line 17-25) digital signal processing block 203 and the rest of Fig.3, to reduce the peak of the multi-carrier input signal; (Col.5 line 41-59) a digital signal processing block 203 that converts the peak reduced multi-carrier baseband to baseband representative of individual carrier signals a digital signal processing block that equalizes the baseband representative of individual carrier to maintain the signal emission and quality requirements; (Col.9 line 36-59) a digital signal processing function that up converts the equalized baseband representative of each carrier to its original baseband frequency;(Col.7 line 50-60) and Fig.2 (232, 237, 239) a multi-carrier transmitter block 115 that prepare the peak reduced muti-carrier signal for delivery to multicarrier signal for delivery to multicarrier amplifier. (Col.7 line 63- Col.8 line 7)

With respect to claim 2, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, wherein multi-carrier input signal from the wireless transmitter is sampled using sub-harmonic sampling technique at the input frequency or at an intermediate frequency. (Col.7 lines 19-39)

With respect to claim 3, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, wherein the multi-carrier input signal from the wireless transmitter is sampled using sub-harmonic sampling technique at the input frequency or at an intermediate frequency and the digitized multi-carrier input signal is decimated to the appropriate number of samples per symbol for further digital signal processing (203-205). (Col. 4 lines 52-63)

With respect to claim 5, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, wherein the multi-carrier input signals from the wireless transmitter are in bit domain and the bit domain baseband signals are up converted, combined and interpolated to produce the digital multi-carrier baseband signal with appropriate number of sample per symbol. (Col.6-7 lines 56-3)

With respect to claim 6, Pinckley discloses the Peak Reduction Equalizer according to claim 1, wherein the digital multi-carrier signal is peak limited by a peak reduction equalizer function, wherein the peak limited multi-carrier signal is then down

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converted to single channel baseband signals by digital down conversion, wherein channels 233, 237, 239; (Col.7 lines 50-66) individual baseband signals are low pass filtered, equalized and up converted back to their original baseband frequency before all individual baseband signals being combined again to produce the multi-carrier Crest Factor reduced baseband signal. (Col.6-7 lines 56-3)

With respect to claim 7, Pinckley discloses the Peak Reduction Equalizer according to claim 1, wherein the multi-carrier signal peak limiting can be perform in analog domain at an intermediate frequency (IF), radio frequency, or analog baseband before being digitized. (Col.6 lines 56 -65)

With respect to claim 8, Pinckley discloses the Peak Reduction Equalizer according to claim 1, wherein the peak limited digital multi-carrier baseband signal is converted to single channel baseband signals by digital down conversion. (Col.4 lines 65-67)

With respect to claim 9, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, wherein the peak reduced signal is digitally up converted and converted to analog domain at an intermediate frequency or the output frequency. (Col.6 lines 56-65)

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With respect to claim 12, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, wherein the Digital Signal Processor (DSP) function can be implemented in programmable logic, Field Programmable Gate Array(FPGA), Gate Array, ASIC, and DSP processor. (Col.4 lines 52-56)

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4,10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinckley (US 6,983,026) in view of Peterzell (US 2002/0132597).

With respect to claim 4, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, however Pinckley does not disclose wherein the multi-carrier input signal from the wireless transmitter is baseband and is sampled using Nyquist sampling technique and interpolated to produce the baseband multi-carrier signal with appropriate number of samples per symbol.

The Peterzell reference however discloses the use of the Nyquist sampling technique to produce a signal with appropriate number of samples per symbol for the Analog to Digital converter. Paragraph [0087]

It would have been obvious to one of ordinary skill in the art to implement the Nyquist sampling technique used to produce a signal with the appropriate samples as disclosed by Peterzell with the Crest Factor reduction circuit disclosed by Pinckley in order to obtain the appropriate sampling rate for producing a multi-carrier signal.

With respect to claim 10, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, however Pinckley does not disclose wherein the received signal strength of the input signal to Peak Reduction Equalizer circuit and transmit signal strength of the output from the Peak Reduction Equalizer circuit is dynamically measures to adjust the total gain of the Peak Reduction Equalizer circuit to unity.

The Peterzell reference however discloses the use of the RSSI measurement as the factor to control the power output of the RF device to a base station. Paragraph [100]

It would have been obvious to one of ordinary skill in the art to implement the RSSI measurement method as disclosed by Peterzell in order to calculate the appropriate power or gain to implement for the RF system as disclosed by Pinckley.

With respect to claim 11, Pinckley discloses the Peak Reduction Equalizer circuit according to claim 1, however Pinckley does not disclose when it is used in wireless cellular, wireless PCS, wireless LAN, microwave, wireless satellite, none wireless communication transmitters, and any wireless communication systems used for military applications.

The Peterzell reference however discloses the use of the RF circuit be implemented in a wireless PCS and Wireless LAN atmosphere.

It would have been obvious to one of ordinary skill in the art to implement the RF device being used in a wireless PCS and wireless LAN environment as disclosed by Peterzell with the crest factor reduction circuit as disclosed by Pinckley in order to implement the crest factor reduction circuit in many different wireless environments.

The Pinckley and Peterzell references are analogous art because both references disclose inventions and methods in the wireless communications environment.

Response to Arguments

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7. Applicant's arguments filed 4/26/06 have been fully considered but they are not persuasive.

With respect to applicant's arguments labeled 1 within the remarks section, applicant states that the Pinckley reference has no resemblance to applicant's arguments. Applicant argues that the Pinckley reference apply Crest Factor reduction on the individual signals, however this approach does not produce any results since after reconstruction of the signal the Crest Factor can increase again. However this argument does not distinguish the claim language written by the applicant to distinguish the current application to be distinguishable over the Pinckley reference.

Applicant should submit an argument under the heading "Remarks" pointing out disagreements with the examiner's contentions. Applicant must also discuss the references applied against the claims, explaining how the claims avoid the references or distinguish from them.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of \$500.00.

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance.

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Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Chan whose telephone number is (571) 272-0570. The examiner can normally be reached on Mon - Fri (9AM - 5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edan Orgad can be reached on (571)272-7884. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Richard Chan
Art Division 2618
1/19/07



NAY MAUNG
SUPERVISORY PATENT EXAMINER